

Educating for Complexity In Nursing Practice: A Baccalaureate Curriculum Innovation

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Preparing registered nurses (RNs) to work in today's complex health system poses a myriad of challenges of a new order. A recent report by the Canadian Association of Schools of Nursing (Canadian Association of Schools of Nursing [CASN], 2010) identifies many pressing priorities for nursing workforce education in the 21st century, including preparing students to address "a continuously evolving and highly demanding health care environment" (p. 4). These include trends of globalization, health inequalities amongst various population groups, increased use of health care technology, and ongoing reforms to primary health care (CASN, 2010). The faculty of nursing at a western Canadian university was motivated to change thinking and practices through redesign and implementation of a new baccalaureate curriculum. This expository article describes the transformational changes of a baccalaureate curriculum based on the need to prepare students with highly developed knowledge and practice competencies in order to address pressing and emerging societal health needs and complexities of current practice (Benner & Sutphen, 2007; Benner, Sutphen, Leonard, & Day, 2010; Huber & Hutchings, 2004; Huber, Hutchings, Gale, Miller, & Breen, 2007; Sullivan & Rosin, 2008).

Impetus for Curricular Transformation

Numerous factors drove the formal decision to redesign the baccalaureate curriculum. First, the effectiveness of student learning in nursing programs has been challenged by the well-recognized phenomenon of the content-laden or additive curriculum, both of which refer to curriculum that focuses on memorization and repetition of large amounts of content and facts (Dalley, Candela, & Benzel-Lindley, 2008; Forbes & Hickey, 2009; Giddens & Brady, 2007; Huber & Hutchings, 2004; Melnyk & Davidson, 2009; Tanner, 2007b). Content-laden curricula are often further compromised by program structures that emphasize success in individual or "silo" courses, in contrast to scaffolding learning experiences designed to develop complex and essential professional competencies (College and Association of Registered Nurses of Alberta [CARNA], 2006).

Second, changing demographics and health and disease patterns in Canada and the United States has resulted in long-standing calls for significant reform to health care (Canadian Nurses Association [CNA], 2008; CNA & Canadian Medical Association [CMA], 2011; CNA, 2012; Institute of Medicine, 2010; Muntaner, Ng, & Chung, 2012; Romanow, 2002; U.S. Department of Health and Human Services, 2003). While health care reform has been slow, it is imperative that significant, timely, and meaningful progress occurs (O'Neil, 2009). Radical change in health care education is critical to this endeavor, including transforming outdated curricula (CNA, 2011). While calls for innovations in nursing education have been made by expert national bodies for more than a decade, a review of current literature (Murray, 2013) revealed increasing evidence that while innovations are being implemented by nursing education programs, more are needed, and formal evaluations are imperative.

Third, the severe RN shortage galvanized attention on the practice readiness of neophyte nurses. Practice stakeholders were openly questioning the fit between the knowledge, skills, and abilities of new graduates and perceived workforce needs. This "disconnect" has been well described (American Association of Colleges of Nursing, 2008; Eggertson, 2013; Romyn et al., 2009; Tanner, 2010; Wolff, Regan, Pesut, & Black, 2010). While employers expect new graduates to meet the demands of today's work environments (CASN, 2010) the impact of the work environment on new graduates also needs consideration. By not supporting effective workplace transition, the products of baccalaureate education, including integration and transfer of competencies into practice, are unable to be realized (Boychuck Duchscher, 2008;

CASN, 2010). While educators are striving to graduate students who meet national entry-to-practice competencies, it is employers who have the ultimate responsibility to support them as they transition into practice.

Lastly, the vision and strategy of the university set the stage for high-quality learning environments in which students thrive on programming enriched by research, scholarship, and outcomes; learning and teaching grounded by evidence, expert instruction, and experiential learning; and community integration cultivating community relationships while bridging theory and practice. This teaching and learning mandate provided the pathway for curriculum redesign asked of by the nursing profession.

Pathway to the Innovation

Major principles used to guide the curriculum development process were drawn from the theoretical foundation of complexity science (Capra, 1996; Fraser & Greenhalgh, 2001), professional nursing practice, context-relevant curriculum, and integrative learning.

Complexity Science

The theoretical foundation of complexity science informed the development of a baccalaureate curriculum that prepares nurses to practice competently today and in the foreseeable future (Capra, 1996, 2004; Fraser and Greenhalgh, 2001). The tenets of complexity science are reflective of the curricular philosophical stance and vision of nursing practice. The theoretic basis of complexity science supports a sophisticated perspective that is inclusive of the concepts of integrative learning, context-relevant curriculum, and the professional practice of nursing.

Complexity science focuses on adaptive systems thinking from a holistic perspective. Embedded is the understanding that component parts of the greater system are best described in relationship to the other (Capra, 1996, 2004). Specifically, tenets applicable to the development of health science curriculum are

- curriculum is an adaptive, holistic system;
- health care is a complex system constantly in flux, as predominant population-health issues evolve and new evidence for health care practice emerges;
- individuals within systems function as independent and creative decision makers;
- paradox and uncertainty are an innate component of all systems;
- dissonance, deviance, and change are viewed as the norm and are valued in adaptive systems;
- change occurs because of individual or system learning; and
- problems are not viewed as roadblocks (Fraser & Greenhalgh, 2001).

Professional Nursing Practice

As educators of nursing, it was imperative to clearly articulate an understanding of nursing practice. In congruence with the jurisdictional RN scope of practice statement (CARNA, 2011), the Bachelor of Nursing program philosophy emphasized the following critical attributes of nursing practice outlined in Table 1.

Table 1

| Critical Attributes of Nursing Practice Emphasized in the Bachelor of Nursing Program |
|--|
| The management and delivery of nursing services in a broad range of settings |
| Involvement of nurse synergy with a dynamic environment characterized by continual change in context and knowledge |
| High-level practice which requires finely tuned clinical reasoning, knowledge translation, and ethical decision-making; |
| Positioning nurses for unique roles and responsibilities in essential health care |
| Requirement for highly developed technical and relational approaches; |
| Utilization of a complex range of theories, knowledge, and skills selected for their value in addressing health needs and issues; |
| Responsive to the complex understanding of culture, human circumstance, health patterns, and population characteristics |
| Includes research, education, policy development, service administration, health service design, and practice approaches that respond to current and future realities. |

The overarching goal of nursing practice is to promote human integrity through health transitions. This is a complex representation of *professional nursing practice* that is congruent with how nursing is understood by the profession and reflects the relevance of complexity science thinking. Nurses must be taught how to think holistically and from a systems perspective (James, 2010). Conceptions of nursing are key determinants of approaches to teaching nursing (Benner et al., 2010; Tilley, 2008; Forbes & Hickey, 2009).

Context-Relevant Curriculum

Doll (1996) offers a beginning understanding of curriculum as the formal and informal structures and processes through which students gain knowledge, understanding, skills, attitudes, and values. As such, curriculum is the multiple contexts and structures in which learning takes place. Iwasiw and Goldenberg (2015) define nursing curriculum as “the totality of the philosophical approaches, curriculum goals, overall design, courses, strategies to ignite learning, delivery methods, interactions, learning climate, evaluation methods, curriculum policies, and resources” (p. 6).

Health care education needs to be responsive to ongoing health care system transformations, which underscores the importance of a context-relevant curriculum. This thinking is validated by the views expressed by the CNA (2011).

A new system needs new service providers. Turning around health and health care systems the way we envision will require radical change in health care education. New topics, teaching methods, science and research are all needed to prepare health professionals for a very different health system (p. 4).

Iwasiw and Goldenberg (2015) explain that a *context-relevant curriculum* attends to its learners, demands of society, expectations of the educational institution, and current and

projected population needs. Most importantly, a context-relevant curriculum is flexible and responds to changing societal needs, circumstances, and advancing knowledge. Nursing education is at risk of losing relevance without significant advancement (Thorne, 2009).

Integrative Learning

For nearly two decades, education and nursing education scholars have recommended creatively merging “learner-centered education and curricula” (Candela, Dalley, & Bensel-Lindley, 2006; Hubball & Burt, 2004; Weimer, 2002), “integrative teaching” (Tanner, 2007a), and “integrative thinking” (Benner et al., 2010; Dickieson, Carter, & Walsh, 2008; Ironside, 2004; Noone, 2009) into professional education programs. Foundational to these recommendations is the goal for students to accomplish *integrative learning* (Benner et al., 2010; Huber & Hutchings, 2004)) for success in addressing real world issues and problems. Integrative learning connects skills and knowledge from varied areas and experiences, integrates theory and practice in various contexts, explores and uses divergent perspectives, and considers the contextual relevance of knowledge (Huber & Hutchings, 2004).

The major principles of integrative learning draw attention to the interplay among the curriculum and pedagogy with faculty and student attributes (Brandon & All, 2010; Huber, Hutchings, Gale, Miller, & Breen, 2007). Purposeful curriculum design provides an opportunity for content application and synthesis. A context-relevant curriculum asks for intentional linkages between the theory and practice, and for students to link their practice and knowledge of learning. In this manner, another feature of a context-relevant curriculum becomes apparent. That is, a context-relevant curriculum is specifically integrative in its design to provide learners the opportunity to tie learning together not easily or typically connected (Huber et al., 2007). As such, integrative learning is foundational to developing a competent nurse who is fully capable to address multi-layered practice situations and to adapt the skills learned across practice situations (Huber & Hutchings, 2004; James, 2010). Integrative thinking is foundational to skilled clinical reasoning and clinical judgment abilities in professional nurses (Tanner, 2006), as health care situations are generally unscripted and uncertain.

Educating for Complex Nursing Practice: Curriculum Innovation

The view that innovation is variation outside of the norm (Plsek & Wilson, 2001) and that well-designed changes can have big effects was adopted through the curriculum redesign. The concepts of complexity science, professional nursing practice, context-relevant curriculum, and integrative learning explicitly guided the development of 14 curricular innovations and structure the descriptions that follow.

Complexity Science

The underlying tenets of complexity science were inextricably intertwined throughout all aspects of the curricular planning, particularly in relation to the developmental processes associated with the core structure. The following three curricular innovations are particularly linked to complexity science.

Innovation: Strategic engagement of diverse, learner-centered faculty in process-focused curriculum development co-emerges a generative, interactive experience spawning valuable, new, and unpredictable curriculum capabilities not inherent in faculty members acting alone. Once a curriculum vision and template was chosen by the faculty as a whole, a broad selection of faculty members was undertaken. Faculty were assigned to *term-focused*

curriculum development teams. Members of each team were selectively chosen to support change and innovation. Key characteristics of assigned faculty were those who addressed the following: diverse in their attributes (pedagogical and content expertise, senior and junior faculty, faculty appointments in differing roles and streams, formal and informal leaders); were comfortable not being the “expert” in all teaching and learning environments; were interested in teaching across and within program elements; understood that students have different attributes, backgrounds, aspirations, and learning needs; valued both ambiguity and complexity; and held the perspective that variable and changing learning environments open up new possibilities and opportunities.

Innovation: Curricular transformation occurs through creating a culture of collaboration and teamwork that honors diversity and interactive faculty dynamics, welcomes productive conflict to cultivate new ideas and solutions, and incorporates teaching, research, and community integration in the context of quality teaching and scholarship, transparency of learning outcomes, and heightened student learning expectations and experiences. The strategic deployment of faculty in to term teams emphasized the critical nature of having mixed expertise within teams. Term teams were comprised of educators, clinicians, and researchers to compliment and enrich the curriculum planning, teaching, and evaluation process, along with exposing students to the interplay between practice, education, and research. Additionally, the diversity within term teams required active learning on the part of team members because problem solving and decision-making were necessary and the value of collaboration grew along with an appreciation for each other’s expertise and innovative or stabilizing strengths.

The diverse and interactive dynamics of term teams not only promoted team member clarity about the curriculum, courses, and teaching activities, but provided students and other stakeholders with transparency about the teaching and learning processes and outcomes.

Innovation: Students and faculty engage in the process of learning professional nursing with the transparent view that practice competence is complex, not developed in linear fashion nor learned in the manner of simple to complex, but is based on constructivist, fluid, systems-oriented approaches that are intentional in seeking ever more integrative understanding. The curriculum design was based on population health/determinants of health perspectives that ground complexity and systems in all curricular areas. The beginning term of nursing study focused on the health of groups, communities and populations, featuring systems and data orientations as the context for understanding health care. Discovering how predominant health issues are interconnected was presented as equal in importance to learning about discrete pieces. Terms cycle through learning about varying units of concern: from populations/communities/groups, to families within populations, to individuals experiencing acuity within families and populations, to a systems view of chronic health issues whereby the learner is facilitated to take a fluid view of complex and enduring conditions from multiple perspectives of populations, groups, families and individuals. All practice learning was valued as complex and contextual including acquisition of psychomotor skills, which cannot be taught in a behavioural or linear way.

Professional Nursing as a Complex Practice

Practicing as a RN is complex and requires an in-depth understanding of knowledge and skills related to all circumstances that have an impact upon the client of focus. Keeping these very broad ideals in mind the following three innovations were implemented.

Innovation: Transformational learners are educated beyond competencies; capability and capacity are cultivated to develop sustainable abilities including adaptability to change, generation of new knowledge, and engagement in continuous performance improvement. The professionally mandated provincial entry-to-practice competencies and the principles of educating for capability and capacity guided development of unique program, term, and course learner outcomes, all of which were mapped and demonstrate relationships to each other and to the entry-to-practice competencies. The learner outcomes were highly responsive to context-embedded professional practice and were utilized as transparent guides and learning tools for educators and students in multiple ways. The learner outcomes provided guidance into teaching and learning approaches that are non-linear involving relational learning by doing, observing, and participating in a community of professional practice; capacity learning to access knowledge and resources efficiently and judiciously to form links between seemingly unrelated areas; and process learning involving facilitation support for learners to construct their own learning goals, receive and provide feedback, articulate their practice, and consolidate their learning. Examples of transformational learning strategies in the program include purposeful story-telling, reflection exercises, facilitated small group problem-based learning, consolidated learning assignments, and practice course evaluation templates.

Innovation: Practice learning experiences are based on equitable but not identical learning scenarios, and through shared learning strategies and skilled facilitation, foundational issues of nursing as a complex practice are brought together. The guided learning strategies implemented by the faculty situated complex student thinking and clinical reasoning by paralleling and contrasting the variations in student experiences and capitalizing on practice diversity. The practice courses were uniquely designed to include the integration of populations, age groups, and practice settings throughout the curriculum as opposed to designated courses. This approach encouraged the application of concepts to various populations, age groups, and settings, and promoted students to experience nursing across all continua on an ongoing basis. Salient learning was captured through shared activities facilitated by the faculty and based on identified learner outcomes. No population of care, age group, or practice setting was considered more complex than another, and situated coaching by teachers facilitates the integrated learning that occurs in each setting.

Innovation: The unique design of Term 7 emphasizes knowledge enrichment and while the learning is highly substantive involving populations with complex needs, its most important feature is the dynamic interplay between knowledge and practice. The seventh term was designed to provide students with opportunities to refine holistic practice and develop depth of focus related to complex practice with complex populations. The emphasis was for learners' existing competencies to be adapted and tuned to new circumstances involving unfamiliar contexts, multifaceted care needs, interdisciplinary approaches, and a more global context. A signature element of this term involved the student's selection of two paired nursing theory option courses, one related to a complex population and the other related to quality health care practices, both of which frame the concurrent practice course associated with the particular

complex population. The integrated classroom and practice experiences provide rich learning for developing a complex understanding of full scope of practice.

Context-relevant Curriculum

Shifting from a traditional curricular approach meant examining how to optimize the use of scarce fiscal and physical educational resources, including both on-campus classroom space and off-campus nursing practice settings, and how to collaborate with stakeholders, including the larger university context, the provincial government, practice settings, other educational institutions, and students. The following three curricular innovations are particularly linked to a context-relevant curriculum.

Innovation: Admission into the nursing program is organized into three specific routes, allowing increased access for potential students and increased consistency with enrolment numbers over the three academic terms. Governmental pressures to increase the number of nurses being educated were a challenge that needed to be considered in planning the curriculum. In addition, existing admission requirements limited easy access to the nursing program for students wishing to transfer into nursing from other university departments. To creatively address these issues, three admission routes were developed: students directly admitted from high school in fall semesters; prior degree holders admitted in winter semester; transfer students admitted in either fall or winter semesters. Each route had a specific progression plan that allows for more consistent student enrolment numbers and increased enrolment from a student waitlist. This also meant that all students completed their non-nursing requirements prior to commencing Term 3 of the program (see Table 2).

Table 2

| Semester | Degree Program Routes | | | |
|---------------|-------------------------------|-------------------------|-----------------------|----------------|
| | Direct-entry – high school | Transfer - September | Transfer - January | Degree-holding |
| Fall | Term 1 | Term 3 | | |
| Winter | Term 2 | Term 4 | Term 3 | Term 3 |
| Spring/Summer | -- | -- | Term 4 | Term 4 |
| Fall | Term 3 | Term 5 | Term 5 | Term 5 |
| Winter | Term 4 | Term 6 | Term 6 | Term 6 |
| Spring/Summer | -- | Term 7 | -- | Term 7 |
| Fall | Term 5 | Term 8 | Term 7 | Term 8 |
| Winter | Term 6 | | Term 8 | |
| Spring/Summer | -- | | | |
| Fall | Term 7 | | | |
| Winter | Term 8 | | | |

Innovation: The academic nursing program schedule is offered over three equal academic semesters, thus eliminating the need for block learning and enhancing nursing practice hours. This change also provided a significant cost-saving structure that allowed for curriculum development. Traditionally, on-campus classroom theory classes had to fit within the university timetable established on a Monday/Wednesday/Friday or a Tuesday/Thursday basis. This was challenging for both the educators and the students; the educators were challenged to have consecutive nursing practice days off campus while the students could not enrol in non-nursing classes that did not fit their nursing schedule. Changing the curriculum so that all non-nursing courses were scheduled for the first two terms of the nursing program allowed consecutive nursing practice courses to be scheduled in the remaining six terms. In addition, the timetable for these remaining six terms was orchestrated so that nursing theory courses were offered to maximize use of limited university classroom space. Offering the same curriculum, rather than the previous multiple curricula, over three academic semesters eliminated the need for condensed block learning, which significantly relieves stress for students enrolled in the accelerated route of the program.

The transition to the revised curriculum resulted in major budgetary savings because the many levels of content from the traditional program were no longer needed. This allowed faculty release for course development in lieu of teaching time, and over time these changes were normalized into more effective use of fiscal resources.

Access to off-campus nursing practice resources was, and continues to be a huge challenge. The baccalaureate program shares limited acute, community, and long-term health care learning resources with multiple professional and vocational learners. This sharing, albeit negotiated, creates many tensions for educators, learners, and practice partners. The innovation offered nursing courses year round, not just within the traditional academic two-term calendar. Offering the third academic term during the spring and summer months alleviated some of the high-volume educational demand on all health care agencies during the regular academic year and provided more nursing practice sites for nursing students. In addition, the faculty negotiated with representatives from the other nursing education programs to have many nursing practice units designated program-specific, thus alleviating the competitive tension and confusion that ensued when two different nursing programs used the same nursing practice unit. Changing the scheduling also supported an increased number of nursing practice hours included in the curriculum, thus enhancing readiness for practice.

Innovation: Foundational curriculum components relate to population health needs, thereby shifting the learning from setting-specific practice commonly situated in acute care settings to an emphasis on developing a broad understanding of community- and population-based nursing situated across various practice settings, including real and simulated environments. The context-relevant and population-focused exemplars used throughout the curriculum reflected the current provincial and national population health issues. In particular, topics included cardiovascular health, cancer, mental health and addictions, early childhood development, and aging adults. The curricular focus on population health ensured that each student had unique practice learning experiences from a combination of practice placements. For instance, a student might be exposed to the pediatric population in a school (Term 3), a parenting program (Term 4), or an acute pediatric unit (Terms 5 or 6). The practice courses were re-conceptualized, enhanced hours in practice learning, and included off-site and on-site practice learning with a view that students will have a “seamless” experience between

their work in practice and the concurrent practice-driven learning activities that happen on campus, which may include low- and high-fidelity simulated experiences. Within each term, learning occurs through a related practice course that addressed the population of focus and students gained situated understanding, skill, and the ability to use knowledge.

Integrative Learning

Individual courses were carefully programmed within and across terms. All nursing terms (i.e., Terms 3 through 8) focused on integrating theory and practice. The planned and integrative term course design was greater than the sum of its parts; course content was carefully chosen to illustrate the integrative nature of health and illness, and taken together, these strategies broadened the traditional conceptualizations of simple to complex learning. The following five curricular innovations are particularly linked to integrative learning.

Innovation: Use a general course template for the nursing semesters, as an integration strategy to enhance knowledge advancement throughout the program. The content for the four courses that comprised each nursing semester (see Table 3) were developed using a general template to support integrative learning among courses offered in each semester and across all years of the program. The silo content structure (e.g., adult health, pediatrics, pathophysiology) of the traditional nursing curriculum was deconstructed and reformulated to foster learning outcomes that reflect integrative learning. This meant that concepts of mental and physical health, both acute and chronic, were presented in courses that capture the complexity of the risk and range of predominant population health challenges, blurring the boundaries between traditional health care specialties (e.g., medical/surgical, pediatrics, psychiatry). This type of learning landscape was intended to reduce fragmented learning, thus better preparing new graduates to face the realities of nursing practice.

Table 3

| Overview of Baccalaureate Curriculum | | | | |
|--------------------------------------|-------------|---|---|--|
| Foundational Courses | | Nursing Courses | | |
| Year 1 | | Years 2-3 | Year 4 | |
| Semester 1 | Semester 2 | Semesters 3-6 | Semester 7 | Semester 8 |
| Kinesiology | Kinesiology | The Discipline & Profession of Nursing | The Discipline & Profession of Nursing | |
| Academic Writing | Statistics | The Science of Health | Nursing senior option - Complex Population | |
| Philosophy option | Open option | Supporting Health | Nursing senior option – Quality Health Care Practices | |
| Arts option | Open option | Integrating Nursing Roles and Practices | Integrating Nursing Roles and Practices | Integrating Nursing Roles and Practices – Preceptored Practice |
| Science option | Open option | | | |

Innovation: Offer non-nursing required courses in Terms 1 and 2 for enrolment of students in either the high school or transfer route so all students enter Term 3 with a similar foundational equivalents. To perform highly skilled technical, scientific, relational, and

leadership nursing work, it is important that students have diverse knowledge of natural physical and biological sciences, social sciences, and humanities. In conjunction with expert academics in other faculties at this western Canadian university and through development of joint teaching appointments, a range of required non-nursing core courses were developed for high school students to build on, integrate, and contextualize as they progress from year one (YO) through the nursing program. For example, core non-nursing courses developed for Terms 1 and 2 (see Table 3) included anatomy and physiology courses with case-based patient and family exemplars and experiential learning activities with cadaver laboratory exercises. Other core courses included statistics and academic writing geared to the needs of nursing students but, like the anatomy and physiology courses, were open to other first-year university students.

The large class sizes and diversity of courses in Terms 1 and 2 hindered the beginnings of a unique nursing student identity. To address development of a community of learners with a growing professional identity, one faculty member's teaching assignment included facilitating YO activities that transitions students into the core nursing program (Terms 3-8). Student initiatives included implementing a YO senior advisory committee to develop leadership capacity within YO students, establishing communication networks with the Undergraduate Nursing Society and senior nursing students, and developing and implementing forums for learning about faculty members, including their courses and research.

Innovation: Use multiple non-linear pedagogies to support integrative learning in theory and practice courses. Integrative learning is intended to help students make informed judgements using multiple connections and linkages between their knowledge and real-world experiences encountered as they become RNs. In the curricular planning, teaching theory to large classes was not balked at; however, students were exposed to multiple methods to support learning (e.g., group work and assignments, simulation, and practice portfolios). All nursing practice courses ensured integrative learning through small group learning and precepted experiences.

Innovation: Create a unique, formalized university faculty stream, the Nursing Practice Instructor (NPI). NPIs straddle nursing practice and education, thereby providing a unique integrative learning tool. NPIs possess fluidity between clinical and educational expertise and are supported to be a scholarly educator. The introduction of the NPI role was intended to strengthen praxis learning by having these instructors work directly with their students during both on-campus and off-campus learning experiences. This role also reinforced the mutual commitment to the curriculum and the students. Instructors were traditionally hired for each term, based on their practice knowledge and expertise. This hiring model did not support a comprehensive understanding of the nursing curriculum, led to outdated modes of instruction, and fragmented student learning. The NPI model encouraged and supported advanced teaching scholarship at a graduate level, while continuing to value practice knowledge and expertise. The overall goal of the NPI model was to provide a learning environment that is congruent with the philosophical underpinnings of the baccalaureate program.

Innovation: Change the language used when referring to learning associated with “nursing practice.” Traditionally, learning to practice as a nurse was referred to as “clinical” and “lab.” The language that best described what nurses do is “nursing practice” and for the purposes of the curriculum, practice is categorized as on-site and off-site practice. The practice courses were designed for a “seamless” experience between students’ work in practice and the concurrent practice-driven learning activities. This language supported ongoing praxis learning

associated with becoming a nurse and enhanced contextual thinking that students learn to practice in multiple settings.

These 14 innovations addressed the need for

- designing a curriculum that strongly focused on essential knowledge of population health issues of concern to nurses' practice and draws on the work of a research-intensive university;
- a curricular structure that was flexible, adaptable to change, and context-relevant to all stakeholders;
- a curriculum that promoted best integrative teaching and learning approaches in practice education; and
- a curriculum that focused on explicit, transparent learner outcomes that account to the professional association entry-to-practice competencies (CARNA, 2006) and addressed the contributions of the nursing profession to health care.

Curriculum Evaluation

The implementation of the curricular innovations is in its infancy. Curriculum evaluation measures are in progress at multiple levels. External validation confirms that the faculty is on the right track. First, the program has been granted ongoing approval by the provincial program approval board. Second, the program achieved the first stage of national accreditation and is proceeding to the next steps. Specific strengths noted by the accreditation team included integrated learning that prepared students for current professional nursing practice, bridging of the theory practice gap, contextual learning opportunities, collaborative relationships among the undergraduate team, and an inclusive, open, and nurturing culture. Third, students who have graduated from this curriculum have had strong success rates on the national registration exam. Internal program evaluation processes are also underway. Data collected from faculty, practice partners, and students has been extremely favourable, but it will be important to trend data over time and validate contributions of the curriculum through further research.

Conclusion

The theoretic basis of complexity science, integrative learning, context-relevant curriculum, and the professional practice of nursing served as drivers to understand and implement innovative strategies to make necessary changes to the curriculum. The intent of sharing these curricular innovations and their theoretical foundations addresses the need for educators "to make teaching practices public, accessible, and therefore available" (Benner et al., 2010, p. 223), as well as to build on the curricular work of others. (Benner et al., 2010). Future focus includes demonstrating that context-relevant, integrated nursing education improves the quality of care offered by new graduates, enables them to make a successful transition to practice, and to make relevant contributions to health care.

References

- American Association of Colleges of Nursing. (2008). *The essentials of baccalaureate education for professional nursing practice*. Washington, DC: Author.
- Benner, P., & Sutphen, M. (2007). Learning across the professions: the clergy, a case in point. *Journal of Nursing Education*, 46(3), 103-108.
- Benner, P., Sutphen, M., Leonard, V., & Day, L. (2010). *Educating nurses: A call for radical transformation*. San Francisco, CA: Jossey-Bass.
- Boychuk Duchscher, J. (2008). A process of becoming: The stages of new nursing graduates' professional role transition. *Journal of Continuing Education in Nursing*, 39(10), 441-450. <http://dx.doi.org/10.3928/00220124-20081001-03>
- Brandon, A. F., & All, A. C. (2010). Constructivism theory analysis and application to curricula. *Nurse Education Perspectives*, 31(2), 89-92.
- Canadian Nurses Association. (2008). *Vision for change: The Canadian Nurses Association offers practical solutions, new thinking and innovation in the health system*. Ottawa, ON: Author.
- Canadian Nurses Association. (2011). *A nursing call to action: The health of our nation, the future of our health system*. http://www2.cna-aic.ca/CNA/documents/pdf/publications/nec/NEC_Report_e.pdf
- Canadian Nurses Association. (2012). *A Nursing call to action: Nurses lead health-care transformation*. http://www2.cna-aic.ca/CNA/documents/pdf/publications/nec/NEC_Report_e.pdf
- Canadian Nurses Association & Canadian Medical Association. (2011). *Principles to guide health care transformation in Canada*. http://www2.cna-aic.ca/CNA/documents/pdf/publications/Guiding_Principles_HC_e.pdf
- Candela, L., Dalley, K., & Bense-Lindley, J. (2006). A case for learning-centered curricula. *Journal of Nursing Education*, 45(2), 59-66.
- Canadian Association of Schools of Nursing. (2010). *The case for healthier Canadians: Nursing workforce education for the 21st century*. Ottawa ON: Author.
- Capra, F. (1996). *A new scientific understanding of living systems*. New York, NY: Anchor Books.
- Capra, F. (2004). *The hidden connections: A science for sustainable living*. New York, NY: Anchor Books.
- College and Association of Registered Nurses of Alberta. (2006). *Entry-to-practice competencies for the registered nurses profession*. Edmonton, AB: Author.
- College and Association of Registered Nurses of Alberta. (2011). *Scope of practice for registered nurses*. Edmonton, AB: Author.
- Dalley, K., Candela, L., & Benzel-Lindley, J. (2008). Learning to let go: the challenge of de-crowding the curriculum. *Nurse Education Today*, 28(1), 62-69. <http://dx.doi.org/10.1016/j.nedt.2007.02.006>

- Dickieson, P., Carter, L. M., & Walsh, M. (2008). Integrative thinking and learning in undergraduate nursing education: three strategies. *International Journal of Nursing Education Scholarship*, 5, Article 39. <http://dx.doi.org/10.2202/1548-923x.1696>
- Doll, R. (1996). *Curriculum improvement: decision-making and process* (9th ed.). Boston, MA: Allyn and Bacon.
- Eggertson, L. (2013). The gap between clinical practice and education. *Canadian Nurse*, 109(7), 22-26.
- Forbes, M. O., & Hickey, M. T. (2009). Curriculum reform in baccalaureate nursing education: review of the literature. *International Journal of Nursing Education Scholarship*, 6, Article 27. <http://dx.doi.org/10.2202/1548-923x.1797>
- Fraser, S. W., & Greenhalgh, T. (2001). Coping with complexity: educating for capability. *British Medical Journal*, 323(7316), 799-803. <http://dx.doi.org/10.1136/bmj.323.7316.799>
- Giddens, J. F., & Brady, D. P. (2007). Rescuing nursing education from content saturation: the case for a concept-based curriculum. *Journal of Nursing Education*, 46(2), 65-69.
- Hubball, H., & Burt, H. (2004). An integrated approach to developing and implementing learning-centered curricula. *International Journal for Academic Development*, 9(1), 51-65. <http://dx.doi.org/10.1080/1360144042000296053>
- Huber, M. T., & Hutchings, P. (2004). *Integrative learning: Mapping the terrain* Washington, DC: Association of American Colleges and Universities, Carnegie Foundation for the Advancement of Teaching.
- Huber, M. T., Hutchings, P., Gale, R., Miller, R., & Breen, M. (2007). Leading initiatives for integrative learning. *Liberal Education*, 93(2), 46-51.
- Institute of Medicine. (2010). *The future of nursing: Leading change, advancing health*. Washington, DC: The National Academies Press.
- Ironside, P. M. (2004). "Covering content" and teaching thinking: deconstructing the additive curriculum. *Journal of Nursing Education*, 43(1), 5-12.
- Iwasiw, C., & Goldenberg, D., (2015). *Curriculum development in nursing education* (2nd ed.). Burlington, MA: Jones & Bartlett.
- James, K. M. (2010). Incorporating complexity science theory into nursing curricula. *Creative Nursing*, 16(3), 137-142. <http://dx.doi.org/10.1891/1078-4535.16.3.137>
- Melnyk, B. M., & Davidson, S. (2009). Creating a culture of innovation in nursing education through shared vision, leadership, interdisciplinary partnerships, and positive deviance. *Nursing Administration Quarterly*, 33(4), 288-295. <http://dx.doi.org/10.1097/naq.0b013e3181b9dcf8>
- Muntaner, C., Ng, E., & Chung, H. (2012). *Better health: An analysis of public policy and programming focusing on the determinants of health and health outcomes that are effective in achieving the healthiest populations*. Ottawa, ON: Canadian Health Services Research Foundation, Canadian Nurses Association.

- Murray, T. (2013). Innovations in nursing education: The state of the art. *Journal of Nursing Regulation*, 3(4), 25-31. [http://dx.doi.org/10.1016/s2155-8256\(15\)30183-6](http://dx.doi.org/10.1016/s2155-8256(15)30183-6)
- Noone, J. (2009). Teaching to the three apprenticeships: designing learning activities for professional practice in an undergraduate curriculum. *Journal of Nursing Education*, 48(8), 468-471. <http://dx.doi.org/10.3928/01484834-20090518-08>
- O'Neil, E. (2009). Four factors that guarantee health care change. *Journal of Professional Nursing*, 25(6), 317-321. <http://dx.doi.org/10.1016/j.profnurs.2009.10.004>
- Plsek, P. E., & Wilson, T. (2001). Complexity, leadership, and management in healthcare organisations. *British Medical Journal*, 323(7315), 746-749. <http://dx.doi.org/10.1136/bmj.323.7315.746>
- Romanow, R. (2002). Building on values: The future of health care in Canada. Ottawa, ON: Government of Canada.
- Romyn, D. M., Linton, N., Giblin, C., Hendrickson, B., Limacher, L. H., ... & Zimmel, C. M. (2009). Successful transition of the new graduate nurse. *International Journal of Nursing Education Scholarship*, 6, Article 34. <http://dx.doi.org/10.2202/1548-923x.1802>
- Sullivan, W., & Rosin, M. (2008). *Shaping a life of the mind for practice*. San Francisco, CA: Jossey Bass.
- Tanner, C. A. (2006). Thinking like a nurse: A research-based model of clinical judgment in nursing. *Journal of Nursing Education*, 45(6), 204-211.
- Tanner, C. A. (2007a). Connecting the dots: What's all the buzz about integrative teaching? *Journal of Nursing Education*, 46(12), 531-532.
- Tanner, C. A. (2007b). The curriculum revolution revisited. *Journal of Nursing Education*, 46(2), 51-52.
- Tanner, C. A. (2010). Transforming pre-licensure nursing education: preparing the new nurse to meet emerging health care needs. *Nurse Education Perspectives*, 31(6), 347-353.
- Thorne, S. (2009). Can we swing the pendulum back to the centre? *Canadian Nurse*, 105(7), 52.
- Tilley, D. (2008). Competency in nursing. *Continuing Education in Nursing*, 39(2), 58-63.
- U.S. Department of Health and Human Services. (2003). Healthy people 2010. Washington, DC: US Government Printing Office.
- Weimer, M. (2002). *Learner-centered teaching: Five key changes to practice*. San Francisco, CA: John Wiley & Sons.
- Wolff, A. C., Regan, S., Pesut, B., & Black, J. (2010). Ready for what? An exploration of the meaning of new graduate nurses' readiness for practice. *International Journal of Nursing Education Scholarship*, 7, Article 7. <http://dx.doi.org/10.2202/1548-923x.1827>